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THREE NEW SPECIES AND SOME NEW RECORDS OF PSOCOPTERA (INSECTA) FROM TASMANIA

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Abstract

Seven species of Psocoptera are here recorded from Tasmania; three are described as new (*Enderleinella hilla* sp. n., *Blaste panops* sp. n. and *Blaste falcifer* sp. n.), two are new records for Tasmania and two are from previously unrecorded Tasmanian localities.

Introduction

Previous references to the Psocoptera of Tasmania are few, being found mainly in papers by Hickman (1934), Edwards (1950) and New (1971).

Through the courtesy of Mr Lionel Hill I have received a small collection of Psocoptera made as part of a survey of the Lower Gordon River area in south-western Tasmania. The material includes three new species which are described below (*Enderleinella hilla* sp. n., *Blaste panops* sp. n. and *Blaste falcifer* sp. n.), two not previously recorded from Tasmania (*Lepinotus patruelis* Pearman and *Psyllipsocus ramburii* Selys-Longchamps), two already recorded from there (*Lepinotus inquilinus* Heyden and *Heterocaecilius brunellus* (Tillyard)) and a few nymphs which cannot be identified.

Lepinotus patruelis, *L. inquilinus* and *Psyllipsocus ramburii* are widespread species but *Heterocaecilius brunellus* is so far known from Victoria, New South Wales, New Zealand and now Tasmania. There are no previous records of Psocoptera from south-western Tasmania. The material of the new species is in the Australian Museum (AM), other named material is either in the Australian Museum or the Tasmanian Museum and Art Gallery (TM) and the undetermined nymphal material in the Tasmanian Museum and Art Gallery.

Trogiidae

Lepinotus patruelis Pearman

SOUTH-WESTERN TASMANIA:— 1 ♂, from litter, closed *Melaleuca* forest, transect 14L 250, 42°38'S, 145°54'E, 5.i.1978 (L. Hill *et al.*). 1 ♀, from litter, transect 2R 860, 42°43'S, 145°50'E, 16.ii.1978 (L. Hill *et al.*). 1 ♂, from litter in scrub rainforest, transect 2L 5656, 42°43'S, 145°46'E, 26.i.1977 (L. Hill *et al.*). 1 ♂, wet sclerophyll, moss, transect 12L 700, 42°55'S, 145°52.5'E, 22.ii.1977

(C. Howard *et al.*) (AM), 1 ♂, from wet scrub, litter, transect 2R 1000, 42°43'S, 145°50'E, 8.ii.1977 (C. Howard *et al.*). 1 ♂, from litter, open *Leptospermum* forest, transect 14L 1300, 42°38'S, 145°53'E, 5.i.1978 (L. Hill *et al.*). 1 ♀, scrub rainforest, moss, transect 2L 2900, 42°43'S, 145°47.5'E, 31.i.1977 (L. Hill *et al.*). (TM).

This widespread species has not previously been recorded from Tasmania.

Lepinotus inquilinus Heyden

SOUTH-WESTERN TASMANIA:— 1 ♀, from moss, open *Melaleuca* forest, transect 5R 2050, 42°48'S, 145°53'E, 1.iii.1977 (L. Hill *et al.*) (TM).

Psyllipsocidae

Psyllipsocus ramburii Selys-Longchamps

SOUTH-WESTERN TASMANIA:— 1 ♀, moss, scrub rain forest, transect 2L 4350, 42°43'S, 145°47'E, 18.i.1977 (C. Howard *et al.*) (AM). 2 ♀, moss, scrub rainforest, transect 4-50, 42°41.5'S, 145°52'E, 14.ii.1977 (C. Howard *et al.*). 1 ♀, moss, transect 3R 100, 43°31'S, 145°46'E, 2.ii.1978 (L. Hill). 1 ♀, moss, *E. nitida* woodland, transect 8L 190, 42°37'S, 145°45'E, 9.ii.1978 (C. Howard *et al.*). 1 ♀, litter, scrub rainforest, transect 2L 1140, 42°43'S, 145°48'E, 3.ii.1977 (L. Hill *et al.*). 1 ♀, moss, scrub rainforest, transect 2R 70, 42°43'S, 145°50'E, 8.ii.1977 (C. Howard *et al.*) (TM).

This widespread species has not previously been recorded from Tasmania.

Pseudocaeciliidae

Heterocaecilius brunellus (Tillyard)

SOUTH-WESTERN TASMANIA:— 1 ♀, from scrub forest litter, transect 4-50, 42°41.5'S, 145°52'E, 14.ii.1977 (C. Howard *et al.*) (TM).

Caeciliidae

Enderleinella hilli sp. n.

(Figs 10-12)

FEMALE

Coloration (in alcohol). Head and body very pale creamy white with faint suggestion of a slightly darker area across vertex between eyes. Eyes black. Ocelli colourless. Maxillary palps pale with very pale yellowish brown fourth segment. Scape and pedicel very pale; first two flagellar segments faintly tinged with brown, other segments brown. Legs pale, second tarsal segment pale brown. Wings hyaline with a very faint brownish tinge, a little darker in cell 1A. Abdomen almost colourless.

Morphology. Length of body: 2.7 mm. Median epicranial suture fine. Vertex fairly flat. Postclypeus strongly bulbous. Length of flagellar segments: f_1 : 0.70 mm; f_2 : 0.58 mm. Eyes moderately large, inner margins diverging slightly behind. IO/D: 0.91; PO: 0.73. Lacinia (Fig. 10). Maxillary palp with very elongate fourth segment. Labrum strongly setose; lateral margins strengthened by a sclerotized bar which is slightly broader proximally than distally; anterior margin sclerotized, more heavily so laterally than nearer the midline; the end of the anterior sclerotized marginal band is backwardly curved at each end in

the curvature of which the integument is developed into a small patch with a reticulate pattern. Measurements of hind leg: F: 0.68 mm; T: 1.20 mm; t_1 : 0.42 mm; t_2 : 0.11 mm; rt 3.8 : 1; ct: 24, 0. Fore wing length: 4.0 mm; width: 1.3 mm. R_1 gently curving so that pterostigma is relatively long and narrow without distinct apex; R_1 meets wing margin at oblique angle. Stem of radial fork almost straight, R_{2+3} only half as long as radial stem; M arises opposite forking of Rs. Areola postica small and more or less semi-circular. Cu_{1a} and basal section of Cu_{1b} evanescent. Veins, except Cu_2 , setose. Epiproct simple, setose, rounded behind, a little longer than base width. Paraproct (Fig. 11) simple, setose; lightly sclerotized except for an elongate, more heavily sclerotized dorso-posterior patch. Trichobothrial field more or less circular. Posterior marginal cones apparently absent. Subgenital plate a simple, setose, lobe. Gonapophyses (Fig. 12) reduced to two small, lightly sclerotized lobes, difficult to see without dissection and staining.

MALE: Unknown.

Material studied. SOUTH-WESTERN TASMANIA:— 1 ♀ (holotype), rainforest beatings, transect 2L 114, 42°43'S, 145°49'E, 3.ii.1978 (L. Hill *et al.*) (AM).

DISCUSSION

Three species are at present included in *Enderleinella* Badonnel, *E. obsoleta* (Stephens) from Europe, *E. zelandica* (Tillyard) from New Zealand and *E. globiclypeus* (Enderlein) from Australia. *E. obsoleta* is easily distinguished by the pointed apophysis at the apex of the lacinia; this is not present in either of the other species nor in *E. hilli*. In *E. globiclypeus*, *E. zelandica* and *E. hilli* the apex is more or less rounded with a slight apical indentation. In both *E. globiclypeus* and *E. zelandica* the ventral valve of the much reduced female gonapophyses is elongate and about four times as long as wide, in *E. hilli* it is much broader and only a little over twice as long as wide. In *E. zelandica* the costal vein in the region of the pterostigma and proximal to it is thickened; in *E. hilli* it is narrow, as usual in the genus. The sclerotized areas on the paraprocts of *E. hilli* are apparently not present in any of the other species. In size, colour and general appearance *E. hilli*, *E. globiclypeus* and *E. zelandica* are similar to one another.

Psocidae

Blaste panops sp. n.

(Figs 1-7)

FEMALE

Coloration (in alcohol). Head pale brown, with darker markings as follows:— a patch occupying the lateral half of each epicranial plate, adjacent to the compound eye; a narrow area across the hind part of the occiput; a circle around each ocellus; a broad band from the eye, through antenna base, down side of postclypeus to anteclypeal suture; two incomplete bars from the broad band between the eye and antenna running towards the ocellar triangle. Genae pale. Labrum dark brown. Scape and pedicel dark brown; first flagellar segment pale brown basally with dark distal quarter; distal segments dark. Eyes black. Maxillary palps pale with dark brown fourth segment. Antedorsum of mesothorax

shiny brown; areas adjacent to sutures pale, lateral lobes shiny brown anteriorly and adjacent to scutellum, otherwise pale; legs pale except for dark apices of tibiae and tarsal segments and a dark area at base of femora. Fore wings (Fig. 1) hyaline marked in shades of brown. Veins brown except for Rs and arms of radial fork near Rs, Cu_2 , either end of first section of Cu_{1a} , half of second section of Cu_{1a} , distal half of section of M between its leaving Rs and joining Cu_1 , which are colourless. Hind wings hyaline with a brown mark between Cu_2 and wing margin. Abdomen pale with irregular, segmentally arranged brown marks.

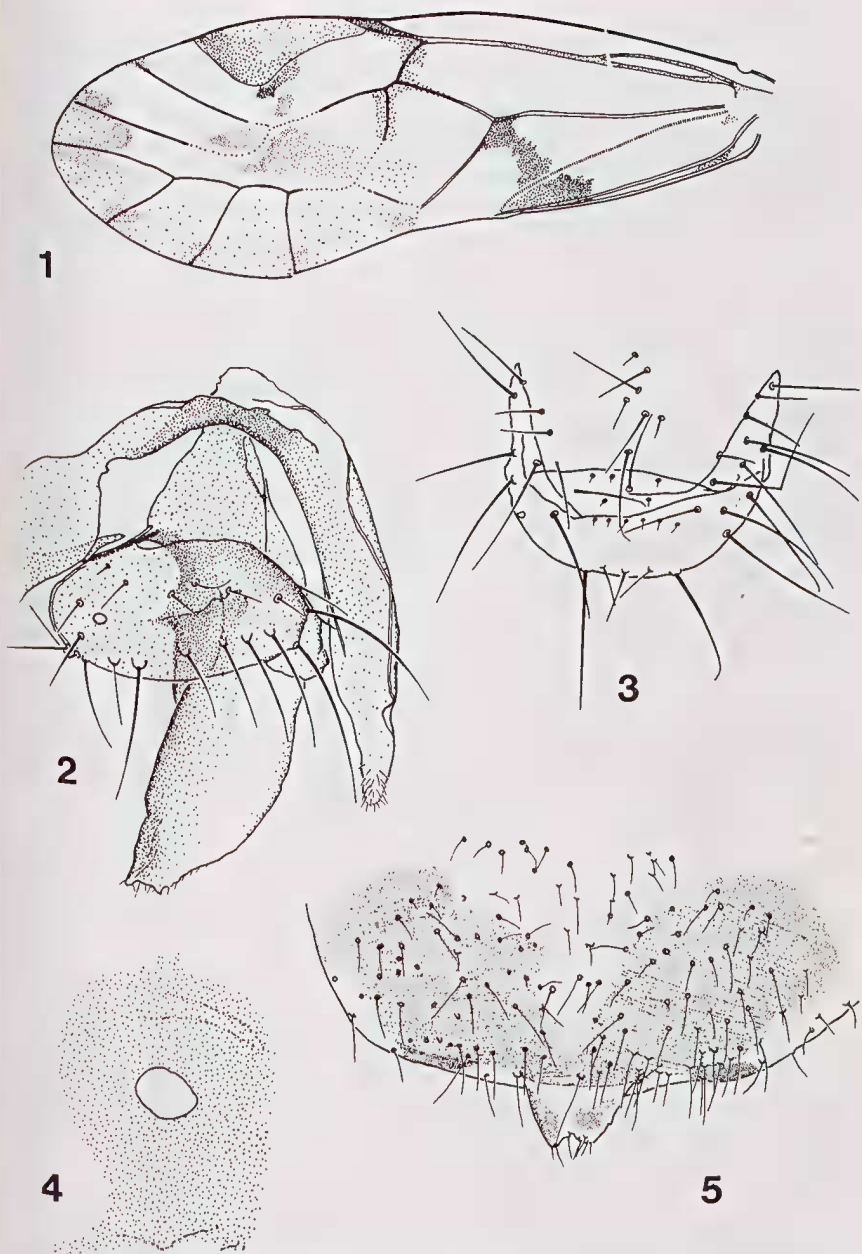
Morphology. Length of body: 3.3 mm. Median epicranial suture distinct, anterior arms evanescent. Vertex rounded, seen from in front slightly concave in middle. Head slightly widened at eye level, with eyes attached at upper angles of head. Lengths of flagellar segments: f_1 : 0.96 mm; f_2 : 1.00 mm. Antennae with short setae. Eyes large and very prominent, above level of vertex. IO/D: 1.9; PO: 0.92. Ocelli large but not prominent. Measurements of hind leg: F: 0.96 mm; T: 2.04 mm; t_1 : 0.64 mm; t_2 : 0.16 mm; rt: 4 : 1; ct: 24, 2. Fore wing length: 4.7 mm; width: 1.8 mm. Fore wing (Fig. 1) with Sc meeting R. Stigmaphysis inconspicuous. Rs and M fused for a length. M, slightly curved between Rs and areola postica, to give a posteriorly narrowed discoidal cell. First and second sections of Cu_{1a} almost in a straight line. Veins and margin glabrous. Hind wing with Rs and M fused for a length. Hind wing length: 3.1 mm; width: 1.2 mm. Epiproct (Fig. 3) very lightly sclerotized. Subgenital plate (Fig. 5) with very short posterior lobe, posteriorly emarginate with a few setae on hind margin. Gonapophyses (Fig. 2). Spermathacal entrance (Fig. 4).

MALE

Coloration (in alcohol). As in female.

Morphology. Length of body: 2.6 mm. Head similar to that of female but with somewhat larger and more prominent eyes. Antennae with long setae. IO/D: 1.4; PO: 1.0. Ocelli a little larger than in female. Fore wing length: 4.7 mm; width: 1.8 mm. Fore wing venation as in female (one wing of allotype male with an adventitious vein joining pterostigma to R_{2+3}). Epiproct lightly sclerotized small, sparsely setose, triangular with a large conspicuous almost rectangular dorsal flap (Fig. 7). The flap is slightly upcurved distally and overlies the ninth tergite. It is a little more heavily sclerotized than the epiproct and has a distinctly developed, sclerotized margin which is rugose distally and laterally near the distal end; elsewhere smoother. Paraproct strongly sclerotized in basal three-quarters, less so distally and with short, broad, apical tooth. Hypandrium (Fig. 6) without conspicuous lateral "horns". Phallosome very similar to that of *B. falcifer* (c.f. *B. falcifer*, Fig. 8), narrow, with long, pointed internal parameres and broader, less well sclerotized external parameres which do not project as far posteriorly as the internal parameres; parameres connected basally by thin membrane.

Material examined. SOUTH-WESTERN TASMANIA:— 1 ♀, 1 ♂ (holotype ♀ and allotype ♂), 3 nymphs, heathland, transect 12R 600, 42°55'S, 143°53'E, 15.ii.1978 (L. Hill *et al.*) (AM).



Figs 1-5. *Blastepanops* sp. n. ♀: (1) fore wing; (2) gonapophyses; (3) epiproct; (4) spermathecal entrance; (5) subgenital plate.

DISCUSSION

Blaste panops belongs to a group of five species within the genus in which the eyes are known to be prominent in both sexes in those species for which both are known and placed on slight dorso-lateral extensions of the head capsule; the male phallosome is elongated and remarkable, in *Blaste*, for the extensive fusion of the parameres. The hypandrium bears a pair of postero-lateral, curved "horns" in the other four of the five species of this group. These are *B. tillyardi* Smithers (from New Zealand and New South Wales), *B. furcilla* New and *B. lunulata* New (from Western Australia) and *B. falcifer* Smithers described below from Tasmania. *B. lunulata* has a wing pattern which includes several dark areas in the median cells and areola postica as well as extensive marks elsewhere which are lacking in *B. panops*. *B. panops* can be distinguished from both *B. furcilla* and *B. tillyardi* by the dark areas at the ends of the branches of M and at the end of Cu_{1a} . Also, the mark between R_{4+5} and M_1 at the wing apex is more clearly defined and consists of a paler area surrounded by a darker border. These differences are easily seen in whole specimens; details of differences in genitalia are seen on dissection. There is little difference between *B. panops* and *B. falcifer* in general appearance and their colour patterns are very similar; the males (males only known in *B. falcifer*) differ conspicuously, however, in that the hypandrium of *B. falcifer* carries a pair of well developed, strongly curved, postero-lateral processes which are lacking in *B. panops*. *B. panops* also differs from *B. furcilla* in that the dorsal, anteriorly directed flap attached to the male epiproct tapers in *B. furcilla* but has a transverse distal margin in *B. panops*, as in the other members of this group of species.

The subgenital plates of the three species for which females are known are distinctive. In *B. furcilla* the posterior lobe is apically rounded, in *B. tillyardi* the border is transverse and in *B. panops* the lobe is very short and medially emarginate. (See comment at end of description of female above).

Blaste falcifer sp. n.

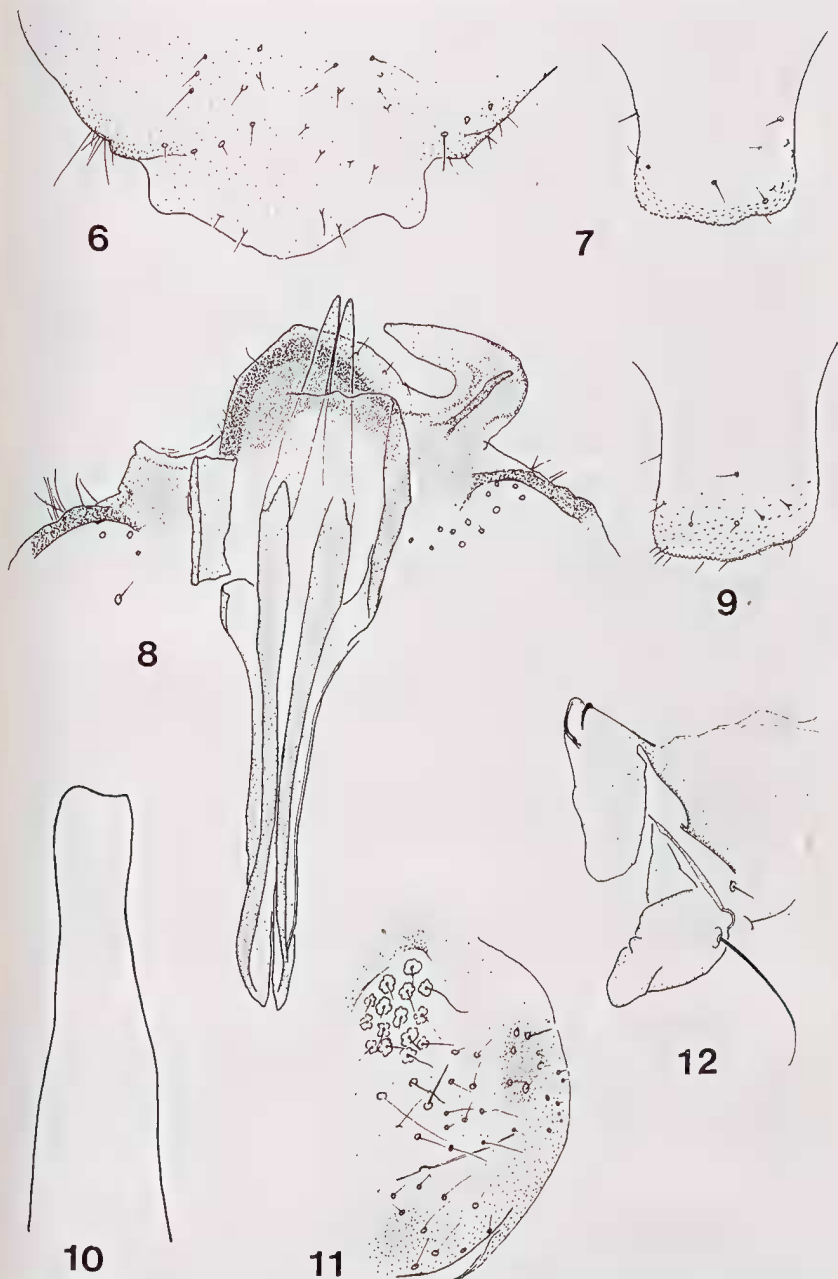
(Figs 8-9)

MALE

Coloration (in alcohol). Identical to that of *Blaste panops* described above, including wing pattern.

Morphology. Length of body: 2.5 mm. Head very similar to that of *B. panops*. Length of flagellar segments: f_1 : 1.04 mm; f_2 : 1.12 mm. Antennae with long setae, many longer than three times flagellar diameter. IO/D: 1.4; PO: 1.0 (as in *B. panops*). Measurements of hind leg: F: 0.84 mm; T: 1.80 mm; t_1 : 0.64 mm; t_2 : 0.20 mm; rt: 3.2: 1; ct: 27, 3. Fore wing length: 4.5 mm; width: 1.7 mm. Fore and hind wing venation as in *B. panops*. Hind wing length: 3.5 mm; width: 1.2 mm. Epiproct small, triangular, lightly sclerotized and bearing a dorsal flap (Fig. 9) as in *B. panops* but the flap has a much more lightly sclerotized border which is rugose in distal quarter laterally and across the transverse distal margin; surface rugose over distal quarter; sparsely setose (cf. *B. panops*, Fig. 7). Hypandrium (Fig. 8) with conspicuous, curved postero-lateral apophyses. Phallosome (Fig. 8).

Material examined. SOUTH-WESTERN TASMANIA:—1♂ (holotype), beating-transect 2R 550, 42°43'S, 145°50'E, 3.ii.1978 (L. Hill *et al.*) (AM).



Figs 6-12. (6-7) *Blastepanops panops* sp. n. ♂: (6) hypandrium; (7) epiproct. (8-9) *Blastepanops falcifer* sp. n. ♂: (8) hypandrium and phallosome; (9) epiproct. (10-12) *Enderleinella hilli* sp. n. ♀: (10) lacinia; (11) paraproct; (12) gonapophyses.

DISCUSSION

See under *Blaste panops* above and following key for comparison with related species.

KEY TO AUSTRALIAN SPECIES OF *BLASTE TILLYARDI* GROUP

1. Females (those of *B. lunulata* and *B. falcifer* are not known) 2
- Males 4
2. Fore wing with extensive pigmented area in cell R_5 between forking of R_s and distal half of M before fusion with Cu_{1a} . Ends of median veins marked with a pigment spot. Subgenital plate lobe emarginate, short *panops* sp. n.
- Fore wings not so marked. Subgenital plate lobe not apically emarginate. 3
3. Apex of subgenital plate lobe rounded *furcilla* New
- Apex of subgenital plate lobe transverse *tillyardi* Smithers
4. Fore wing with extensive pigmented area in cell R_5 between forking of R_s and distal half of M, before fusion with Cu_{1a} . Ends of median cells with pigment spot or areas of dark pigment at wing base 5
- Fore wings not so marked 7
5. Hypandrium with curved, postero-lateral horns 6
- Hypandrium without curved, postero-lateral horns. (Dorsal flap of epiproct with distal margin transverse) *panops* sp. n.
6. Fore wings with darkly pigmented areas at wing base and in median cells *lunulata* New
- Fore wings without darkly pigmented areas at wing base; median cells faintly pigmented *falcifer* sp. n.
7. Dorsal flap of epiproct with transverse distal margin *tillyardi* Smithers
- Dorsal flap of epiproct tapering distally *furcilla* New

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